Medical Technology Association of Australia

Caring for Older Australians
Medical and assistive technologies to enable Australians to remain in their homes
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MEDICAL TECHNOLOGY FOR A HEALTHIER AUSTRALIA

Contents

1. Executive Summary

This submission is in response to the release in January 2011 of the Productivity Commission draft report *Caring for Older Australians.* The Medical Technology Association of Australia (MTAA) welcomes the opportunity to comment on the report and make specific recommendations. As a general comment MTAA feels that while the report is comprehensive in its recommendations for funding aged care facilities, a vital chapter is missing. MTAA recommends that the report include strategies for assisting older Australians to remain in their own homes, for as long as possible, with appropriate support from medical and assistive technologies.

MTAA **recommends**:

- An additional Chapter (Chapter 15) that includes comprehensive strategies for the provision of community support, support for care givers, consumable medical items and appropriate assistive and medical technologies to enable older Australians to stay in their own homes, delaying the transition into residential care and decreasing the rate of hospitalisation
- Clear recommendations outlining the use of assistive technologies and ageing, including definitions and examples
- Developing a National Agenda around technology and ageing. This should include research, trials, pilots, infrastructure, education, awareness, quality standards, financial models, cost effectiveness and commercialization. The first step in this process should be the compilation of the vast amount of research from pilot studies that have already been undertaken in Australia. Many assistive technologies already have well documented outcomes (e.g. personal alarms and telehealth). There is a strong need to build the infrastructure to enable these technologies to be offered to Australians.

The Productivity Commission paper *Caring for Older Australians* was released in May 2010 and asked: *How might technology be used to enhance the care of older Australians?* The MTAA submission specifically addressed this question[1]. MTAA also attended the *Technology Workshop* in Melbourne on October 13 and made a further submission based on the questions raised at the workshop[2].

2. About the medical technology industry

The MTAA represents the manufacturers, exporters, importers and distributors of medical technology products in Australia. The medical technology industry manufactures many products that contribute to the health of older Australians. These include devices to manage cardiac disease, diabetes and chronic obstructive pulmonary disease (COPD), as well as a range of devices that can be used to monitor patients in their homes (e.g. personal alarms, sensors, heart rate and other vital signs monitors, pressure sensors, enuresis sensors, scales, glucose monitors, blood pressure monitors, sub-acute medical products etc). The medical technology industry had sales in Australia of more than $7.6 billion in 2009-10 and employs more than 17,500 people.

Australia faces many challenges with the provision of aged care services. Forecasts by the National Health and Hospitals Reform Commission(1) estimate that the number of aged care places will need to double by 2030 in order to meet demand. An additional strain on the healthcare system is a shortage of informal care-givers, nurses(2) and doctors(3). The

[1] http://www.pc.gov.au/projects/inquiry/aged-care/submissions, submission 187.
[2] http://www.pc.gov.au/projects/inquiry/aged-care/submissions, supplementary to submission 187.

medical technology industry provides a range of home health solutions which assist in meeting these challenges.

3. Comments on the Productivity Commission Draft Report

The draft report: *Caring for Older* A*ustralians* proposes a number of reforms. These focus on simplifying the gateway for information and assessments, support services to meet individual needs, enabling choice between care at home or in a residential facility and the mechanisms to fund the cost of care. The draft contains a large amount of detail on the proposed mechanisms to fund residential care but little to no detail regarding the types of strategies needed to stop or defer the transition to residential care. The draft report does mention assistance with basic support such as home maintenance and modification, meal preparation and transport, but does not mention the range of assistive technologies that enable patients to remain at home. The report should include a detailed definition of assistive/enabling technologies, examples of how they are used and a list of the types of items that are available. Technology can play a role in all levels of the care continuum (e.g. basic care, personal care, specialist care and support for care givers). Examples of assistive technology and definitions could be included in Figure 3 – Aged care and support: a building block approach.

Chapter 10 covers age-friendly housing and retirement and recommends improving age-friendly housing designs. The draft report states that research is needed to assess the effectiveness of preventative and early intervention measures, home maintenance and modifications and assistive technologies. There has been a large amount of research, and a large number of Australian pilot programs that demonstrate the effectiveness of technology to support ageing in place. Technological capabilities already exist. There is a need for a National Agenda around technology and ageing. Relevant research should be compiled to determine evidence-based best practice covering a range of technologies.

The draft report states that individuals will have some control over the types of services they receive, for example the opportunity to choose a provider. It is possible that those providers who offer a package that offers assistive/telehealth technologies will have a competitive advantage. While this may be the case it is still important that there is a clear strategy and infrastructure for the provision of these technologies. It is vital that older people have access to information about technology. The aged care system is already confusing to navigate. Older individuals are less likely to be technologically savvy and aware of the range of medical and assistive technologies available.

4. Continuum of care

There is a continuum of care that ranges from independent living at home, home living with assistive medical technologies, high level support in the home, low level residential care, high level residential care and 24 hour nursing facility care. The further along the continuum, the more costly the care. Government-subsidised aged care services are currently provided to approximately 900,000 older Australians(4). The aim of community care is to aid frail elderly people and those with disabilities to remain either in their own homes or in assisted living arrangements. When care needs can no longer be met in the community, individuals are transitioned to residential care settings.

5. The home is an appropriate place for healthcare

A paradigm shift is needed to address the challenges associated with caring for an ageing population. Medical care is traditionally provided in clinics, hospitals and residential care units. Health care funding supports these traditional models of service delivery, for example Medicare Benefit Schedule (MBS) item numbers are provided for face-to-face consultations,

chronic care is managed in hospitals or clinics and funding is provided for products (pharmaceuticals, durable medical equipment). The draft report states that changes to aged care funding will enable individuals more choice in aged care services. For many the home is an appropriate place to receive these services. The report does not address the range of choices that are available to assist patients to manage medical conditions and remain independent at home (e.g. telehealth, provision of medical devices and consumables). MTAA recommends expanding those sections addressing "greater choice of aged care services" to include access to assistive home and medical technologies.

A range of technologies exist to assist and support patients who wish to remain in their own homes. Research in the US to determine the benefits of assistive technology found that 80% of elderly individuals were able to reduce dependence on others and 50% were able to avoid entering a nursing home(5). The MTAA would strongly argue that the provision of care that enables individuals to be treated in the home environment is far more cost effective that than all other alternatives. A recent study in Northern Ireland compared the costs of in-hospital care to comparative delivery of out-of-hospital over a year. Out-of-hospital care was 80% less expensive. Five patients could be treated at home for the same price as treating one patient in hospital(5). There are a number of examples where care is pushed into hospital settings that could be provided in the home. For example, patients with chronic wounds are most appropriately treated at home (by community nurses) or in the general practitioner's office(6). Because modern wound care products are not funded, patients end up being treated in (costly) hospital settings.

The draft report states that aged care costs range from $1,000 per annum for basic home support to up to $65,000 per annum for the highest level of residential care. There are a number of examples in Australia where healthcare is being provided in the home at minimal costs. For example, Feros Care[3] in New South Wales provides telehealth and telecare services which assist patients in their homes for as little as $7.14 and $3.46 per day respectively. Similarly, Silver Chain in Western Australia is using telehealth technology to assist patients with COPD to remain out of hospital at a cost of $12.79 per day(6).

Older Australians wish to remain in their homes for as long as possible(7) and are very accepting of technologies that enable them to do so(8). There are a number of assistive living and health monitoring technologies that can delay or stop the transition into residential care. These are outlined in subsequent sections.

6. Strategies to keep older Australians in their homes

6.1. Providing access to technology to support telehealth

The Issues Paper *Caring for Older Australians* asked specifically *"How might technology be used to enhance the care of older Australians?" (page 26).* There is a large amount of evidence to show that medical and assistive technologies can significantly improve the lives of older Australians. There has been a shift in chronic disease management from acute care in hospitals to home or residential care. The term telecare covers first generation technologies such as alarms, sensors and alerts that are utilised in conjunction with telecommunications to provide proactive and/or reactive care to individuals in the home environment. Telehealth is the delivery of medical services through information technology, multimedia, imaging and telecommunications. It is an overarching definition that includes the discipline of remote patient monitoring. Remote monitoring of vital signs uses equipment and medical devices installed in the patient's home to identify trends and generate alerts when necessary, in order to detect symptom exacerbations, intervene early and reduce hospital

[3] www.feroscare.com.au.

admissions. Suitable conditions for home telehealth include chronic diseases associated with ageing such as COPD, asthma, diabetes, cardiovascular disease and cardiac arrhythmias. The term assistive technology is more general and refers to a range of devices that can be used to assist individuals with sensory, motor or cognitive impairments to achieve greater independence.

The medical technology industry manufactures a range of assistive devices including personal alarms and alert systems, enuresis monitoring devices, home units for measuring temperature, heart rate, blood pressure, activity/inactivity sensors, glucose levels, oxygen levels and objective symptoms. Devices may have a diagnostic application (e.g. an implantable loop recorder), assessment application (e.g. bladder diaries) or monitor symptoms associated with an undiagnosed condition (e.g. atrial fibrillation).

The social and health benefits of telehealth can be summarised as:

- Reducing barriers of access to healthcare and decreasing disparities due to geography
- Providing access to specialists in remote areas
- Reducing the pressure on the healthcare workforce
- Freeing up hospital beds
- Promoting proactive healthcare
- Early detection of abnormalities/symptom exacerbations
- Decreasing potentially preventable hospitalisations
- Provision of a viable alternative to outpatient or doctor visits
- Reducing congestion in medical centres and emergency rooms
- Increasing quality of life
- Encouraging adherence to treatment regimes
- Reducing the burden on care givers
- Reducing the use of patient transport services (particularly ambulances)
- Assisting patients and caregivers to remain in the workforce
- Decreasing the impact of predictable factors that lead to care (e.g. falls, incontinence)
- Reducing nursing home admissions
- Decreasing healthcare costs[4].

6.2. Providing access to remote monitoring technology in the home

The type of technologies that can assist with medical care in the home include:

- Glucose monitoring devices used by insulin dependent diabetics
- Electrocardiogram (ECG) and mobile telecardiology systems for monitoring cardiac arrhythmias
- Home haemodialysis monitoring systems
- Wireless devices combining satellite global positioning systems (e.g. for dementia patients who wander)
- Home monitoring devices for pulse oximetry, blood pressure, heart rate, heart rate variability, epilepsy, spirometry and weight monitoring
- Portable anticoagulation monitors
- Smart incontinence management systems, enuresis devices, and remote monitoring of continence events
- Remote monitoring and assistance for cochlear implantees

[4] MTAA has outlined cost savings to Government of $3.1 billion per year, see http://www.mtaa.org.au/pages/images/MTAA%20pre-Budget%20submission%202011-2012%20final.pdf.

- Remote monitoring of implantable cardiac devices
- Alarm systems to monitor falls and other medical alerts
- Videoconference consultations.

6.3. Providing access to medical consumables to older Australians in the home

MTAA has proposed that an Essential Care List (ECL) be developed to ensure that sub-acute care medical products needed by patients for their care, and in some cases, survival, are readily available using a system that is equitable, transparent and affordable. The scheme will enable subsidised access to essential care medical technologies that provide necessities to chronically ill or incapacitated patients in the community setting. The items intended for inclusion in the scheme are consumable, single use, non-implantable medical products, together with the hardware that the consumables are used with, essential to maintain an acceptable quality of life for afflicted patients who without government subsidy would not have adequate access to life supporting medical technology. The scheme is outlined in detail in the initial MTAA submission to the Productivity Commission[5].

Products identified in an initial scope of the scheme include:

- Oxygen supplies/consumables
- Compression hosiery, bandages and garments for lymphodaema
- Continence products
- Modern wound care devices (including wound dressings)
- Breast prosthetics (non-implantable)
- Pumps and consumables for insulin delivery, and continuous flow pumps for drug delivery, together with consumables
- Continuous positive airway pressure (CPAP)/sleep apnoea devices
- Laryngitic products
- Diabetes consumables (pens, strips, pump consumables)
- Home dialysis devices, consumables and set-up costs.

At present many of these essential care items are either unfunded or, if funded, vary in availability and subsidy depending on the place where the patient lives. Some assistance is available from the Federal Government; other support is from State Governments. MTAA's conception of an Australian scheme is that it will operate similarly to a very simplified Pharmaceutical Benefit Scheme. It is expected there would be some degree of patient co-contribution. The ECL would replace a range of existing schemes that are currently run by Commonwealth, State and Territory Governments. These include:

Federal	
	National Diabetes Services Scheme (NDSS)
	Stoma Appliance Scheme (SAS)
	Continence Aids Payment Scheme (CAPS)
	National Epidermolysis Bullosa Dressing Scheme
State and Territory	
ACT	Equipment Scheme (ACTES)
NSW	Program of appliances for disabled people. (PADP)
NT	Territory Independence and Mobility Equipment (TIME) Scheme
QLD	Medical Aids Subsidy Scheme (MASS)
SA	Independent Living Equipment Program (ILEP)
TAS	Community Equipment Scheme (CES)

[5] http://www.pc.gov.au/projects/inquiry/aged-care/submissions, submission 187.

VIC	Victorian Aids and Equipment Program (AEP)
WA	Community Aids and Equipment program (CAEP)

6.4. Providing access to technology for older Australians in rural and remote communities

Rural Australians have poorer health and access to fewer health services. People in remote areas make greater use of hospital emergency departments than primary care facilities. They also have the highest rates of potentially preventable hospitalisations, due to inequitable access to health services, medical consumables and medical technology(4).

There are a number of medical technologies that meet the challenges associated with providing healthcare to remote populations. For example:

- Videoconferencing can be used to provide medical screening and treatment to patients in remote areas
- A range of telehealth services including vital signs monitoring can be delivered via internet-based systems
- High technology medical devices (e.g. implantable cardiac devices) can be monitored remotely.

The strategies above increase the likelihood that a patient in an isolated community can remain in their own home and not be transitioned into a residential care setting (most likely situated in a metropolitan area). There is an inequity in the provision of chronic heart failure management programs in rural Australia as the majority of these programs are located in capital cities or metropolitan areas(9). Telehealth can improve access to care for these patients by easing logistical burdens and reducing or eliminating unnecessary travel for routine checkups.

6.5. Targeting predictable factors that lead to hospitalisation or residential care

There are a number of predictable factors that lead to older patients being placed in residential care, the impact of which could be lessened if appropriate assistive technologies were available. A study of nearly 3,000 older Australians over a 14 year time period found that nursing home placements were primarily due to principal diagnoses such as dementia (44%), stroke (16%) and coronary heart disease (14%). Other research has found that the hazard of nursing home placement increases significantly with age, urinary incontinence, impaired peak expiratory flow, physical disability and depression(10). Incontinence, together with factors such as falls and disability rates are significant contributors of increased care needs (11). These types of factors are all potentially amenable to home monitoring interventions.

Falls are a major predictor of institutionalisation. In 2003-04 injuries from falls were the largest group of all cases of hospitalised injury (36%). Nearly half of all injuries from falls occurred in individuals over the age of 65 years(12). Women over the age of 85 have the highest rate of falls injuries(13). Assistive technology can be used to decrease falls by reducing potential trip hazards, warning of balance and vision problems via monitoring, and providing patients and caregivers with falls detectors and alerts for use in an emergency.

Additionally, it is known that intervention in earlier stages in the trajectory of chronic disease may delay nursing home entry(14). Remote monitoring of patients with chronic disease has been shown to reduce hospital readmissions and the number of patient bed days. For this reason, those patients with chronic disease who are likely to benefit the most should be

targeted for home monitoring. In many cases these are likely to be individuals who have a high rate of healthcare utilisation.

6.6. Providing access to smart homes

Chapter 10 covers age-friendly housing and retirement and recommends improving age-friendly housing designs. Chapter 10 should include a sub-section that introduces the concept of a smart home. A smart home is termed as a residence that is fitted out with equipment that monitors individuals' health and safety and enables independence (for review see (15)). Smart homes that are fitted with medical, assistive and communication technologies are of most benefit to: patients who live alone and would have difficulty seeking help in an emergency, elderly or disabled individuals who suffer from cognitive or physical impairments, individuals in rural and remote communities, individuals who suffer from chronic disease and require continuous monitoring and informal care givers. Technology needs will vary between individuals and will change with age.

Independent living solutions have been piloted throughout Australia, with excellent outcomes. Personal alarms are a good example of a technology used by older Australians to gain faster assistance in an emergency and increase the amount of time they are able to remain in their homes. De San Miguel & Lewin(16) assessed 2,610 Silver Chain CareLink Personal Alarm users. The majority were female, living alone and over the age of 80. Clients reported that they were able to gain faster assistance in an emergency, increase their sense of security, increase the length of time they were able to remain in their own homes and decrease their anxiety about falling(16).

The types of technologies that can be included in smart homes include:

- Assistive devices such as lifts, support rails, pull cords, hoists, seating aids, walkers and mobility aids
- Home automation technologies such as automatic lighting from bed to bathroom, security systems, intelligent keyless entry, automated home appliances and temperature control
- Medication management including electronic pill dispensers that alert caregivers if medication is missed and simple technology for medication reminders
- Motion detectors for monitoring inactivity / mobility
- Home safety and security
- Falls detectors and falls monitoring
- Environmental detectors, such as smoke alarms, flood detectors, gas / carbon monoxide detectors, temperature extreme detectors, door sensors and property exit sensors
- Pendant style, self activated alarms to alert caregivers in case of emergency
- Technologies to assist with prompts and reminders
- Pressure sensors to detect bed and chair occupancy
- Epilepsy and enuresis sensors
- Communication devices such as telephone amplifiers, sensory enhancements and computers
- Wearable sensors including Global Satellite Positioning (GPS) for dementia patients who wander
- Online subjective questionnaires to assess symptom change
- Vital signs monitors (pulse, blood pressure, weight, blood oxygenation, ECG, glucometers)
- Monitoring hubs for implantable devices with remote monitoring capabilities such as implantable cardiac and glucose monitoring devices

- Devices for disease prevention and alleviation, including CPAP devices, home dialysis systems, drug delivery and infusion pumps, pain relief and modern wound care devices.

6.7. Providing access to technology to support caregivers

Caregivers are ageing and the availability of caregivers is diminishing. There will be a dramatic increase in the rise of older people who suffer from dementia, which will place a considerable burden on caregivers. In 2010, 1.2% of the population (257,000 people) suffer from dementia. This percentage is expected to rise to 2.8% of the population (981,000 people) by 2050(17). There are a wide range of medical technologies that can be used to assist caregivers, for example alerts that wake caregivers when an individual with dementia leaves the house at night. Additionally, there are a range of environmental sensors such as smoke alarms, gas sensors, flood detectors and temperature extremes sensors designed to identify potential risks in the physical environment which can be used to alert a caregiver nearby or emergency services for appropriate assistance. The same technologies can be used to assist the caregivers of individuals who are at risk of falling or who have other medical or chronic conditions that require continuous monitoring.

7. Clinical benefits of telehealth

A large number of studies report a wide range of clinical benefits associated with telehealth, including reduced mortality, hospital admissions and readmissions, length of time in hospital, and critical care utilization[6]. Select examples include:

- An increase in mean survival time in a sample of 387 diabetic patients who undertook daily vital signs monitoring(18)
- A 71% reduction in emergency room admissions in respiratory patients who had oxygen saturation measured by pulse oximetry and monitored daily(19)
- A reduction in the number of hospital readmissions in patients with angina(20)
- Significant improvements in health related quality of life and a decrease in mortality in COPD patients using home monitoring(21)
- A 25% reduction in numbers of bed days of care and a 19% reduction in hospital admissions in 17,025 veterans with chronic disease who were enrolled in a home telehealth program(22)
- A 68% reduction in bed days of care in cardiac patients who transmitted daily electrocardiogram (ECG) and blood pressure data(23)
- Earlier detection of clinical anomalies in patients with implantable cardiac devices who were monitored remotely using automated, wireless technology(24)
- A significant decrease (45%) in the need for in-patient hospital evaluation in 1,339 patients with implanted cardiac defibrillators who were remotely monitored(25)
- Reduced time to clinical decision in a large group (n=2,000) of patients with implantable cardiac devices who were monitored using wireless telemetry devices and alerts(26)
- A 50% reduction in mortality in a large sample (n=69,556) of patients with implantable cardiac devices, including cardiac defibrillators(27).

[6] For a comprehensive review of the clinical literature see http://www.pc.gov.au/projects/inquiry/aged-care/submissions, submission 187.

8. Current Australian Government funded schemes

Access to technology is vital to the provision of ambulatory care. At the level of the Federal Government, little policy work has been done to develop telehealth or other assistive technologies in Australia. A small number of devices that fit under the remote monitoring umbrella are funded in an ad-hoc way. For example, individuals who are eligible for Department of Veterans Affairs assistance may apply under the Rehabilitation Appliances Program (RAP) for a personal response system. A small number of items are funded by Private Health Insurance and are listed on the Prostheses List (e.g. implantable cardiac devices). In these cases the device is funded and the monitoring capabilities tend to be a free or unfunded adjunct. Currently there is no policy that outlines how doctors and allied health professionals should be reimbursed for telehealth.

At the State Government level there are a range of funded initiatives to develop integrated models of care for chronic disease. Each state and territory currently has some provision for assistive technology, although the focus is on visual or hearing impairments and mobility. There are a range of telehealth pilots operating in each state and territory. There is a need for comprehensive policy that pulls all of these services together, with the specific aim of ensuring Australians can access support to remain independent in their homes.

The Federal Government is introducing MBS item numbers for telehealth in July 2011. At this stage it is not known whether the $402.2 million allocated will cover more than rebates for online consultations. MTAA has recommended that MBS item numbers for telehealth include reimbursement for the assessment and monitoring of medical data collected from a patient's home (remote monitoring). Telehealth item numbers should be flexible enough to cover services provided by a doctor, nurse, allied health professional or specialist. The introduction of flexible MBS item numbers for telehealth services would be a major paradigm shift and would enable the delivery of health monitoring services to elderly patients in their homes.

9. Funding mechanisms

Under the current system older individuals have problems accessing multiple services in order to continue living independently. Those who wish to transition between related systems (e.g. from hospital to home or to a residential care facility) face difficulties. Choice may be limited due to complicated funding arrangements and some people are virtually forced to enter residential care in order to receive accommodation subsidies(28). Perverse incentives mean that funding may be available to those in high level care facilities, but not to those who wish to use assistive technologies to remain at home. These factors have led to a financial bias towards residential care.

Multiple funding sources can be considered to fund home health technologies. These include:

- MBS items for services such as telehealth and home monitoring of vital signs[7]
- Federal funding for ageing-in-place
- Community care packages (e.g. Home and Community Care (HACC), Community Aged Care Packages (CACPs), Extended Aged Care at Home (EACH) and Extended Aged Care at Home Dementia (EACH-D) packages)
- Contributions from private health insurance
- Individual contributions.

[7] See response to Australian Government paper on *Connecting health services with the future: Modernising Medicare by providing rebates for online consultations* - 27 January 2011. http://www.mtaa.org.au/pages/page308.asp

10. Conclusion

MTAA considers the home an appropriate place for healthcare delivery and recommends

- Providing access to technology to support telehealth
- Providing access to medical technology in the home
- Providing access to medical consumables to older Australians in the home
- Providing access to technology to support older Australians in rural and remote communities
- Targeting predictable factors that led to hospitalization or residential care
- Providing access to smart homes
- Providing access to technology to support caregivers.

The sophistication of home health medical technologies will increase. In the future wireless technology will enable many medical devices to be monitored from a distance, effectively assisting with 'hospital in the home' type care. The Productivity Commission needs to recognise that the home is an appropriate setting for healthcare. MTAA recommends the need for ageing in place policy to decrease hospitalisations and defer residential care admission.

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